Unit 7 – Inference for Quantitative Data: Means

~14 – 16 Class Periods
10 – 18% Exam Weight

Day	Lesson and Objectives	Assignment
1	Activity: Walk It Out o Gather Data	
2	Activity: Walk It Out o Analyze the Data	
3	Notes 1 – Confidence Intervals for Means o One Sample Z-Interval o t Distributions o One Sample T-Interval	HW 1
4	Notes 2 – Significance Tests for Means o One Sample Z-Test o One Sample T-Test o Interpreting Errors	HW 2
5	M&M Activity: Testing a Claimed Mean	
6	Unit 7 Quiz	
7	Notes 3 – Margin of Error and Matched Pairs o Margin of Error for Means o Matched Pairs Data	HW 3
8	Notes 4 – Difference Between Two Means o Sampling Distribution of a Difference in Means o Two-Sample Z Statistic o Two-Sample T Statistic o Two-Sample T Interval for Means o Two-Sample T Test for Means o Practice Problems	
9	Finish Notes 4	HW 4
10	Notes 5 – Choosing Your Inference Method o Comparing Inference Methods o Summarizing CI and HT for Means o Recapping CI and HT for Proportions	
11	Work Day o Unit 7 Summary Slides o Unit 7 Test Review o Project: Hypothesis Testing	
12	Unit 7 Test	

Prerequisite Knowledge
Students would have had Unit 6 – Inference for Categorical Data: Proportions, before they begin this unit. In that unit, we discuss the following topics: • Idea and interpretation of a confidence interval • Relationship between critical values, margin of error, and confidence interval width • Idea and interpretation of significance tests • Type I, Type II, and power of a significance test • Combining standard deviations and means to compare populations • Creating confidence intervals, running significance tests, and comparing populations for proportions • Relationship between confidence intervals and significance tests While some of the information above is reviewed throughout, everything in this unit builds off of that knowledge.

Special Notes

- Each "Day" is approximately 50 minutes
- Blank days usually involve me finishing up the notes from the day before and then giving them time to start the assignment for that day.
- My pacing is usually under the recommended days from the College Board to allow for me to insert extra days in the unit where I need them (more time on notes; another day to go over homework; extra activities, etc.)
- In my class, I have the HW due the next day in class, the Test Review due the day of the test, and the Unit project due a week from when it was assigned.
- If you have any questions on content or pedagogy, please email me at goldiesmathemporium@gmail.com

Student-friendly learning targets:

- 7A: Students will be able to describe t-distributions and their properties.
- 7B: Students will be able to identify an appropriate confidence interval procedure and verify the conditions for calculating the confidence interval for a population mean.
- 7C: Students will calculate, interpret, and justify a claim about a confidence interval for a population mean.
- 7D: Students will determine the margin of error for a given sample size and an estimate for the sample size that will result in a given margin of error for a population mean.
- 7E: Students will identify the relationships between sample size, width of a confidence interval, confidence level, and margin of error for a population mean.
- 7F: Students will identify the null and alternative hypotheses for a population mean and identify an appropriate testing method for a population mean while verifying the conditions for making statistical inferences.
- 7G: Students will calculate the test statistic and p-value, interpret the p-value, and justify a claim about the population based on the results of a significance test for a population mean.
- 7H: Students will be able to identify an appropriate confidence interval procedure and verify the conditions for calculating the confidence interval for a difference in population means.
- 7I: Students will calculate, interpret, and justify a claim about a confidence interval for a difference in population means.
- 7J: Students will identify the null and alternative hypotheses for a population mean and identify an appropriate testing method for a difference in population means while verifying the conditions for making statistical inferences.

- 7K: Students will calculate the test statistic and p-value, interpret the p-value, and justify a claim about the population based on the results of a significance test for a difference in population means.